CASE REPORTS

Refer to: Cone LA, Fensterer FS: Tetanus following a dental operation. Calif Med 119:57-58, Sep 1973

Tetanus Following A Dental Operation

LAWRENCE A. CONE, MD
Palm Springs

FRED S. FENSTERER, MD
New York City

ABOUT 60 PERCENT of all patients with tetanus experience injuries to their extremities before the onset of the disease.[1] Although most are due to farm or garden-related wounds or lacerations,[2] "urban" tetanus more often results from the use of contaminated syringes or needles in heroin addicts.[3] Occasionally tetanus follows surgical or obstetrical[4,5] procedures and in rare instances complicates dental surgical operations.[1,5,6] In about 7 percent of the proven cases of tetanus, no obvious portal of entry can be determined.[1] The following report suggests that the patient acquired tetanus during a dental surgical procedure.

Report of a Case

A 59-year-old Caucasian woman was transferred to Lenox Hill Hospital in New York City from another institution for further evaluation and treatment. She had been in excellent health. Then, three weeks before admission, a peridontal abscess that was discovered at a routine dental examination was treated with curettage, scaling and antibiotics. The patient then was well until, a week before admission, she began to have pain in the throat. She was treated by her private physician with 250 mg of penicillin by mouth three times a day for five days. Several days later, mild trismus was noted and the patient was admitted to a hospital, where results of laboratory studies, including a spinal fluid analysis, were within normal limits.

Difficulty in breathing developed and the patient became hypoxemic and stuporous. Tracheostomy was performed on the third hospital day and she then became alert and was able to communicate by writing. Spasticity of the extremities developed, however, and she was therefore transferred to Lenox Hill Hospital for further evaluation and treatment. The patient said she had had no recent puncture wounds or injections other than dental, and had taken no medications other than the penicillin already mentioned. She had been receiving dexamethasone (Decadron®) intravenously while at the other institution. Past history, review of systems, social history and family history were unremarkable.

At the time of physical examination upon admission the tracheostomy tube was in place and the patient appeared to be in no acute distress. The temperature was 37°C (98.6°F), the pulse 104 and regular, respirations 24 and blood pressure 130/80 mm of mercury. Significant physical findings were limited to the neurological examination. The patient was irritable and had pronounced trismus. She was able to communicate by gesticulation and could move her eyes in all directions. Her legs were held in rigid extension with both feet in plantar flexion. She was able to breathe spontaneously through the tracheostomy tube. Sensory functions were apparently within normal limits, but examination was limited because of the patient's irritability. The deep tendon reflexes were 3 plus bilaterally in all extremities, and questionably positive Babinski's reflexes were noted.

Admitting laboratory data, including results of a lumbar puncture, were essentially within normal limits except for a creatine phosphokinase of 1,450 units. An x-ray film of the chest showed no pathologic change, and an electrocardiogram revealed

From the Department of Internal Medicine, Lenox Hill Hospital, New York City.

Submitted, revised, May 11, 1973.

Reprint requests to: L. A. Cone, MD, 1733 North Palm Canyon Drive, Palm Springs, CA 92262.

a sinus tachycardia with a ventricular rate of 105 and non-specific ST-T wave changes.

The patient was given 3,000 units of tetanus immune globulin, aqueous penicillin G, 2 million units every four hours, sedation and anti-spasmodic and supportive treatment. A dental consultant noted a sinus tract 7 mm deep in the maxilla, in the area of the root of a missing maxillary right molar tooth. Culture of material from this area grew out Pseudomonas aeruginosa and Klebsiella sp. Anaerobic cultures were sterile on several occasions.

A protracted hospital course was complicated by paroxysms of hypertension, cardiac arrhythmia, gastrointestinal bleeding, respiratory tract infection and prolonged sedation following the use of tranquilizers. She nevertheless made an excellent recovery and was discharged after 53 days. Propranolol (Inderal®) appeared to be partially effective in controlling the episodes of paroxysmal hypertension and tachycardia.

Comment

Although the incidence of tetanus in the United States is decreasing, nearly 200 cases[7] are reported annually to the Center for Disease Control. It is particularly in urban areas, where farming and gardening injuries are not likely to be a source of infection, that one must suspect an iatrogenesic etiology or illegal drug use. Since this patient denied any injury in several months before the onset of illness and received no medical therapy other than the dental operation, it seems logical to assume that the latter was related to the development of the disease. The prolonged prodrome of dyphagia likewise suggests that the mouth may have been the portal of entry. Clostridium tetani could have been present in the mouth at the time of operation. In addition, the presence of a dental abscess itself may have provided the nidus for the tetanus bacillus. On careful evaluation of the autoclaving procedure, no fault could be found with the sterilization of instruments. The failure to isolate C. tetani from the mouth a week after the onset of the disease and nearly three weeks after the operation cannot be considered as gainsaying the oral portal of entry, since organisms are cultured from only a third of the infected wounds in proven cases of tetanus.[8]

Of the three previous references to tetanus complicating oral surgical procedures[1,5,6] only that of Zylka[6] describes a case in detail; and it also mentions other cases by Kneise and a statement in a German text that odontogenous causes of tetanus are known to occur. In Zylka's case the patient was a four-year-old girl in whom signs of tetanus developed three days after incision and drainage of a periodontal abscess. Clostridium tetani was not isolated from material that drained from the lesion.

Consistent with previous observations that 95 percent of patients with tetanus have never had an injection of tetanus toxoid, the subject of this case report had never been immunized. This further supports the recommendation that the tetanus-immune status of pregnant women, the elderly and patients undergoing surgical procedures be appraised before operation.[9,10]

Finally, there was in this patient an indication that the difficult problems of paroxysmal hypertension and tachyarrhythmia which often occur during the second week of tetanus may respond to small doses of parenterally administered propranolol.

REFERENCES

1. La Force, FM, Young LS, Bennett CV: Tetanus in the United States (1965-1966)—Epidemiologic and clinical features. N Engl J Med 280:569-574, 1969

2. Buchanan TM, Brooks GF, Martin S, et al: Tetanus in the United States 1968 and 1969. J Infect Dis 122:564-567, 1970

3. Cherubin CE, Cone LA: Tetanus in narcotic addicts. Proceedings of the International Conference on Tetanus Berne, July 15-19, 1966. Sponsored by the Swiss Academy of Medical Sciences with the support of WHO. Ed. by L. Eckmann. Berne, Huber 1967 pp 199-203

4. Critchley AM: Tetanus neonatorum. Pub Health 71:459-463 1958

5. Christensen NA, Thurber DL: Clinical experience with tetanus—91 cases. Proc Staff Meet Mayo Clin 32:146-158, 1957

6. Zylka N: Odontogener tetanus. Deutsch Zahnaertz Zeitschr II:643-646, 1954

7. Peebles TC, Levine L, Eldred MC, et al: Tetanus-toxoid emergency boosters—A reappraisal. N Engl J Med 280:575-581, 1969

8. Christensen NA[3], pp 455-467

9. Mortality and Morbidity Weekly Report—Recommendations of Public Health Service Advisory Committee on Immunization Practices: Diphtheria, Tetanus and Pertussis Vaccines: Tetanus prophylaxis in wound management. 15:416-418, 1966

10. Ipsen J: Tetanus—Still here? N Engl J Med 280:614, 1969